

I see teaching as the great opportunity to educate the professionals and scientists of the future who will continue to make key advances in science and technology to make our lives better. Therefore, as a future faculty member I will perform my teaching duties with passion. I am interested in teaching various courses aligned with my research areas. My priorities would be on courses such as algorithms, data structures, parallel and distributed computing, scientific computing, numerical linear algebra and numerical analysis, both at the undergraduate and graduate level. I am also interested in teaching entry-level courses in the computer science curriculum, such as introduction to programming and discrete mathematics.

In a fast-paced field like computer sciences, it is most important to impart on students an ability to teach themselves, even more so than the nuances of any one topic. Nevertheless, both the curriculum and the course contents need to be adapted to the recent technological advances. For example, today multi-core processors have replaced the once prevalent single-core processors. So parallel programming concepts should be introduced much earlier in the CS curriculum. Also computer architecture and programming language classes could be revised accordingly. Another example is the rapidly growing field of data sciences. Today, one can not think of a curricula without touching on the data management and analysis concepts. As a faculty member, I aim to design my courses so that they will serve best to the needs and interests of students.

During my courses, I would like to see a good understanding of the theory in my students, which is complemented by a hands-on experience of the material being covered. Classes will emphasize the theoretical discussion of concepts by constantly paying attention to the big picture. In computer science, there are various methods to solve even the most fundamental problems, and each solution will have its pros and cons depending on the context. A student should have a solid understanding of what kind of algorithms and methods are available for dealing with a particular problem and he/she should also know the similarities and nuances between these methods to be able to judge on the best solution. I believe that frequent homework and project assignments which follow the topics covered in class are very important for the student to digest the course material. In order to ensure that students get the most out of the time they spend on assignments, I am planning to provide templates, examples, etc. necessary to minimize the technical difficulties that a student might encounter. Today most algorithms, data structures and numerical methods are available as software libraries. Besides exercises covering fundamental concepts, I also would like to design projects where students learn how to use the available libraries to tackle more interesting and exciting problems.

One of my main priorities will be to establish an interdisciplinary program in computational and data science and engineering (CDSE), or to take part in an already existing CDSE oriented program. The overarching goal here will be to expose students to concepts, ideas and problems in different disciplines; as well as to bring students from different majors together as part of a team for class assignments and projects, so that they experience interdisciplinary collaboration. There are several reasons for setting this as a priority. First of all, computational methods have already gained a wide-spread adoption both in industrial and academic settings. In addition, data-centric computational approaches will become increasingly important in the coming decades. Therefore, from a student's perspective, an education in computational and data science is highly valuable for a career. Secondly, in the 21st century, computational science is predicted to have a significant impact in terms of economic and strategic leadership in the world. Despite the growing need for people with computational science education, there is a substantial difficulty in finding professionals and scientists with the desirable skill set. Therefore establishing a program with an emphasis on CDSE education is essential. I was a significant beneficiary of a rich interdisciplinary program at Purdue, one of the largest and oldest programs of its kind in the world.

I have helped the "Introduction to Programming" and "Discrete Mathematics" classes as a teaching assistant at Purdue University. I was a founding member of the Purdue Math & Science Initiative Student Club, whose mission was to involve students in math & science at a young age. As part of this effort, I have taught "Introduction to Programming and Algorithms" classes for 3 semesters. During my postdoc, I have been associated with Accord Institute's A* Program, which is aimed at educating gifted children on advanced topics in math and CS. I have taught "Algorithms and Data Structures" courses at various levels in the A* program. Through these experiences, I have developed the necessary skills to become an excellent educator.